

## **1. Amendments to the Specification**

1. Please replace the paragraph on page 1, line 30 to page 2, line 9, with the following rewritten paragraph.

Method variation for obtaining the highly reactive calcium sorbents, from de-agglomerated calcium carbonate and/or fly-ashes, characterized in that to de-agglomerated calcium carbonate with grain size below 150  $\mu\text{m}$ , beneficially to 30  $\mu\text{m}$  and  $\text{CaCO}_3$  content min 92% by weight, fly-ashes are added from combustion of coal fuels, especially in ~~in~~-boilers with fluidized bed furnaces or boilers equipped with powdered-fuel burners, where dry desulfurization of exhaust gases is used, which contain by weight 4% up to 40% of  $\text{CaO}$ , from 25% up to 45%  $\text{SiO}_2$ , from 3% up to 37%  $\text{Al}_2\text{O}_3$ , and where content of calcium carbonate in the mixture with fly-ashes is ~~20-60%~~ 20-60% by weight, beneficially 40% by weight, and so prepared mixture of calcium carbonate and fly-ashes is being mechanically de-agglomerated and activated, through free particles collisions at the speed at least 8 m/sec.

2. Please replace the paragraph on page 3, lines 13-23, with the following rewritten paragraph.

Method of obtaining highly reactive calcium sorbents, according to invention, based on mechanical de-agglomeration and activation, through free collisions of particles, at the speed at least 8 m/sec, of the mixture containing ~~20-60%~~ 20-60% by weight, beneficially 40% of de-agglomerated calcium carbonate, with grain size below 150  $\mu\text{m}$  and content at least 92% by weight of pure  $\text{CaCO}_3$  with fly-ashes, coming from the combustion of coal fuels, especially in boilers with fluidized bed furnaces or equipped with powdered fuel burners, where the dry desulfurization is used, characterized in that calcium carbonate is being pre-mixed with fly-ashes containing by weight 25% up to 45% of  $\text{SiO}_2$ , from 3% to 25% of  $\text{Al}_2\text{O}_3$ , from 10% to 40%  $\text{CaO}$ , from 5% to 15%  $\text{SO}_3$ , and then the mixture is mechanically de-agglomerated and activated.

3. Please replace the paragraph on page 4, lines 1-10, with the following rewritten paragraph.

In the third variation of invention, method of obtaining materials from fly-ashes, coming from combustion of coal fuels, especially in boilers with fluidized bed furnaces or equipped with powdered fuel burners, where the dry desulfurization is used, through mechanical de-

agglomeration and activation by free particles collisions, at the speed at least 8 m/sec, characterized in that ashes containing by weight from 25% to 45% of  $\text{SiO}_2$ , from 3% to 25%  $\text{Al}_2\text{O}_3$ , from 10% to 40%  $\text{CaO}$ , from 5% to 15%  $\text{SO}_3$ , beneficially with addition up to ~~up to~~ 51% of activator, are being mechanically de-agglomerated and activated. As activator, the Portland cement or the slag, or clinker linker, or the mixture 0,1 to 51% by weight, beneficially 5 to 20%, is used.

4. Please replace the paragraph on page 5, lines 9-20, with the following rewritten paragraph.

Device for obtaining the highly reactive calcium sorbents, according to invention, consisting of the container with cover, which has a dielectric layer inside, of the chamber closed with an open cone, with flat bottom, with central hole, where the shaft passes through, having a rotor with radial arms fastened to it, and bearings of the shaft and rotor drive are covered with dustproof housing, and inside the chamber there is a grid of rods, characterized in that the ashes inlet pipe located centrally, in the axis of the rotor, has a tapered, expanding to the bottom outlet. To rotor disc, set of arms ~~is~~ fastened, which have angle blades, and every second arm is in the plane of rotor disc, whereas the others have a  $1^\circ$  to  $2,5^\circ$  rise. Between the outer cylindrical surface of chamber and inside, cylindrical surface of container there is a cylindrical basket, electrically connected to the body of container.

5. Please replace the paragraph on page 7, lines 1-18, with the following rewritten paragraph.

The charge in form of calcium carbonate and/or fly-ashes, coming ~~coming~~ from combustion of coal, especially in boilers with fluidized bed furnaces or boilers equipped with powdered fuel burners, where the dry desulfurization is used, is being introduced with metering feeder 1 through the inlet pipe 2 on the rotating with specified speed rotor 8. Particles of ashes are being transported with arms 10 of rotor 8 on angle blades 11 and thrown as dense aerosol in direction of rods 15, colliding with them at the speed at least 8 m/sec. Result of the collisions are lattice defects in multi-layer envelope of particles, micro-cracks, dislocations. Big particles of ash are de-agglomerated, there is also spheroidizing of ash particles, because of internal friction in dense aerosol. As result of activation, static charges are emerging on the surface of defect particles, causing separation of activated and non-activated material. Because of electrostatic

repulsion, particles are leaving the process chamber 3 and settling on walls of container 5 and basket 16, where the excessive static charge is discharged and particles are slipping down into conic part of container 5. The accumulated, in conic part, active calcium sorbent shows sorbent properties, used by cleaning of exhaust gases from sulfur oxides, ~~coming down~~—from combustion of coal fuels in boilers with fluidized bed furnaces, boilers equipped with powdered fuel burners, where the dry desulfurization is used.

6. Please replace the paragraph on page 7, line 22-27, with the following rewritten paragraph.

Example I:

~~Content~~ Content of ashes from boiler with fluidized bed furnace:

SiO <sub>2</sub>	39% by weight
<del>Al<sub>2</sub>O<sub>3</sub></del> Al <sub>2</sub> O <sub>3</sub>	21% by weight
CaO	15% by <del>weight</del> <u>weight</u>
SO <sub>3</sub>	10% by weight

Other chemical compounds 15% by weight.